

1999 IEEE MTT-S International Microwave Symposium



JUNE 13-19, 1999 • ANAHEIM CALIFORNIA

MICROWAVE WEEK

Microwave Week 1999 brings together the technical and professional meetings of the MTT-S International Microwave Symposium (IMS), the Radio Frequency Integrated Circuits Symposium (RFIC) and the Automatic RF Techniques Group Conference (ARFTG). The IMS technical program covers the entire spectrum of microwave topics. In addition, the IMS exhibition is the largest in the world for RF and microwave equipment. The RFIC Symposium is held in conjunction with the IMS and consists of technical and panel sessions on the latest RF integrated circuits. The ARFTG Conference features papers, informal discussions and exhibits relating to RF and microwave measurement systems and design techniques.

IMS TECHNICAL PROGRAM

This year's IMS technical program has been expanded to four days to accommodate a record number of technical papers and increase the proportion of full-length presentations. The Interactive Forum is organized by topic and will be presented on three afternoons. Over 475 presenters from countries throughout the world will report the latest advances in microwave and related technologies and applications during the IMS technical program.

The special sessions feature seven focused sessions, five panel sessions and one rump session, many of which will address technology and business forecasts for the 21st century. Topics for the focused sessions include:

- Commercial Microwave Sensors
- Passive Remote Sensing
- Terabit Technology
- Optoelectronic Processing of Microwave Signals
- Submillimeter-wave and Terahertz Technology
- Processing Technology
- Photonic Bandgap Technology

A special historical session on microwave system developments in Southern California will highlight the fields of satellite communications, deep space exploration and airport surveillance radar.

Business and technical issues will be covered at noontime panel sessions and an evening rump session. Topics for discussion include:

- High Efficiency Power Amplifiers
- Starting an Engineering Business
- Balancing Business and Technical Concerns
- Open Frame Architecture
- Planning for the High Data-rate Communications Era
- Access to MCM-D Packaging Technology

PLENARY SESSION

The plenary session is an integral part of the IMS Technical Program and will include presentation of the 1999 IEEE Electromagnetics Award to Prof. Robert E. Collin and IEEE Fellows Awards to MTT-S recipients. Dr. John Forrest, Vice President of the Royal Academy of Engineering (UK), will present the keynote address, "Communications Networks for the New Millennium." Dr. Forrest's address will be the first of a series of theme presentations throughout the IMS technical program, in focused sessions, panel discussions and workshops, emphasizing the technical program theme: "Technologies for the New Millennium."

WORKSHOPS

The IMS workshops provide information on the latest technology being used and developed in the microwave industry. A total of 21 workshops will be held on Sunday and Friday of Microwave Week. These workshops are tutorial and interactive. All will provide you with critical knowledge needed to succeed as an RF/microwave professional.

RADIO FREQUENCY INTEGRATED CIRCUITS SYMPOSIUM (RFIC)

Since its new mission was defined in 1997, the RFIC has established itself as the leading symposium dedicated to highly integrated and system-on-a-chip (SOC) ICs and subsystems. Technical activities include a workshop on Sunday, technical sessions on Monday and Tuesday, and a panel session on Monday. The symposium kicks off with an invited session on Wireless Communication IC Trends. This year's symposium highlights the accomplishments and technology breakthroughs in low power transceivers, "digital" radios, analog and digital function integration, third-generation cellular phones, etc... The second day of the symposium includes a session held jointly with the IMS and highlights the advancement in microwave and millimeter-wave ICs for commercial and military applications.

The RFIC social program will include the traditional reception held on Sunday evening and the *Microwave Journal*/MTT-S Reception on Monday evening.

53RD ARFTG CONFERENCE

The 53rd Automatic RF Techniques Group (ARFTG) Conference will be held at the WestCoast Anaheim Hotel on Friday, June 18. The Conference theme is "Non-linear Characterization."

The explosion of wireless communication has created many new challenges in product design and test. Increasing consumer usage requires tighter and tighter performance specs in markets that are more and more cost sensitive. In particular, getting non-linear devices to operate at lower voltages efficiently and in linear modes is often a conflicting trade-off. To meet these challenges, new techniques in measurement and design are required.

The ARFTG Conference theme will aim at characterizing components, subsystems and systems that contain non-linear elements. This includes automated techniques in test and design, and integrating the test/design process. In addition, other papers concerning RF/microwave measurements are invited.

MICROWAVE APPLICATION & PRODUCT SEMINARS (μAPS)

μAPS is a vendor forum featuring product-oriented seminars presented by participating exhibitors. Located on the trade show floor adjacent to the exhibition booths, these seminars offer the latest technology for the wireless, SATCOM, military and medical markets. Six sessions will include discussions on measurement techniques and theory; modeling, CAD and packaging; components; devices and applications; and wireless communications and amplifiers.

SOCIAL EVENTS

Microwave Journal/MTT-S Reception: All Microwave Week attendees and exhibitors are invited to attend a reception hosted by *Microwave Journal* and MTT-S on Monday, June 14 from 6:00 to 8:00 PM in the Arena at the Anaheim Convention Center.

Industry-hosted Cocktail Reception: Symposium exhibitors will host a cocktail reception on Wednesday, June 16 from 6:00 to 7:30 PM at the Anaheim Marriott. Complimentary beverage tickets will be included in the registration packages.

IEEE MTT-S Awards Banquet: The annual Awards Banquet will be held on Wednesday, June 16 from 7:30 to 10:00 PM in the Ballroom at the Anaheim Marriott. This magical evening will begin with an elegant dinner, followed by the awards presentation and entertainment by none other than "Marilyn Monroe," "Frank Sinatra" and others!

GUEST PROGRAM

Hospitality Suite: Guests of attendees are invited to visit the Hospitality Suite in the Veranda Room of the Anaheim Marriott. It will be open Sunday through Friday from 8:00 AM to 4:30 PM. A continental breakfast will be served in the morning, and light refreshments will be available during the day. Knowledgeable tour guides and hosts will be on hand to answer your questions on the highlights and sights of Orange County.

Disneyland Convention Special: Enjoy a day of rides and fun at Disneyland at a reduced price — \$35.00 for adults, \$30.00 for children age 3-11; both prices include meal vouchers worth \$7.55. (Regular admission, \$38.00, does not include food.) Tickets are good for any one day during Microwave Week. Bring the whole family! Children age 2 and under are admitted free.

Tours: Several interesting and appealing tours have been arranged for spouses and guests. All tours depart from the Hospitality Suite on a comfortable coach. Return times have been scheduled to allow for evening activities. As the tours involve varying degrees of walking, comfortable shoes are advised. Tour Tickets and a complimentary Guest Badge will be included in the registration packets of those who have preregistered for the Symposium. The Guest Badge allows access to the exhibits and the plenary session. Because all tours are sold on a first-come, first-served basis, we recommend that you sign up using the advance registration.

SUNDAY, JUNE 13 **GETTY CENTER**
9:30 AM-3:30 PM **COST: \$30 PER PERSON (LUNCH NOT INCLUDED)**

Join us at the Getty Center, Los Angeles's newest cultural and architectural landmark. Discover the Getty's memorable works of art, from illuminated manuscripts of the Renaissance to 19th Century American photography to van Gogh's *Irises*. Enjoy views of Los Angeles from the mountains to the downtown skyline to the sea. A number of dining options, indoor and out, with a range of menus and prices is available. Maximum: 50 participants.

SUNDAY, JUNE 13 **HUNTINGTON LIBRARY,**
9:30 AM-3:30 PM **GALLERIES AND BOTANICAL GARDENS**
COST: \$30 PER PERSON (LUNCH NOT INCLUDED)

The exhibits at the Huntington art galleries in Pasadena include the famous Gainsborough *Blue Boy* and Lawrence's *Pinky*, as well as works by Reynolds, Van Dyck and Constable. The library displays many original manuscripts and rare books, one of which is a complete Gutenberg Bible. The Huntington also has 207 acres of magnificent gardens, including a wonderful Japanese garden. Guests can purchase lunch on site.

MONDAY, JUNE 14 **MISSION SAN JUAN CAPISTRANO**
9:00 AM-3:30 PM **AND LAGUNA BEACH**
COST: \$55 PER PERSON (LUNCH INCLUDED)

We will have a docent-guided tour of this famous California Mission, known as the "Jewel of the Missions." The Mission's original chapel, built in 1777, is the oldest building in California. After lunch in Laguna Beach, there will be time to stroll through the galleries, artisans' studios and boutiques for which the town is famous. The magnificent natural setting of Laguna Beach has attracted artists and poets since the turn of the century. Whether you want to buy or just look, the galleries offer a pleasant excursion.

TUESDAY, JUNE 15 **SENSATIONAL LONG BEACH**
9:30 AM-3:30 PM **COST: \$55 PER PERSON (LUNCH INCLUDED)**

Long Beach is experiencing a true Renaissance. The opening of the 150,000-square-foot Aquarium of the Pacific has brought about

this rebirth. Enjoy a docent-guided tour of the Aquarium and experience the marine life of the Pacific Rim. We will enjoy lunch at a seafood restaurant in Seaside Village, a short walk from the Aquarium, situated right at the harbor. The afternoon continues with a 45-minute narrated cruise of Long Beach Harbor, one of the busiest ports in the world.

WEDNESDAY, JUNE 16 **NIXON PRESIDENTIAL LIBRARY**
9:30 AM-3:00 PM **AND ANTIQUING IN OLD-TOWN ORANGE**
COST: \$50 PER PERSON (LUNCH INCLUDED)

Join us for a visit to the Richard M. Nixon Library and Memorial. The Nixon boyhood home is here, as are the graves of President and Mrs. Nixon. From the library, we will travel to Old-town Orange where the Plaza is surrounded by authentic Victorian architecture and charming shops. This town, including 1,700 of its buildings, was recently listed on the National Register of Historic Places. We will have lunch at a charming Victorian Manor. After lunch, you will have time to explore some of the 50 antique shops and 10 antique malls.

THURSDAY, JUNE 17 **FROM BOWERS TO FLOWERS**
10:00 AM-3:00 PM **COST: \$50 PER PERSON (LUNCH INCLUDED)**

The Bowers Museum of Cultural Art collects and preserves the indigenous fine art of Oceania, the Americas, Africa and the Pacific Rim. Artifacts date from 1500 BC to mid-20th Century. The Bowers was voted one of the country's ten "must see" museums. After leaving the Bowers, we will visit the Sherman Foundation Gardens. We will then enjoy a gourmet box lunch at Corona del Mar's Inspiration Point, with a view encompassing Newport Coast to the north and the Laguna Mountains to the south. There will be time to walk down to the beach and dip your toes into the ocean or to stroll along Ocean Avenue enjoying the views and looking at luxurious homes.

TRAVEL TO ANAHEIM

Air Travel: United Airlines is the official airline of IMS '99. Call United's Specialized Meeting Reservations Center at (800) 521-4041 and use Meeting ID Number 523HU. You may choose a five percent discount on any United domestic published airfare or a 10 percent discount on the unrestricted midweek coach fare. Receive an additional five percent discount on tickets purchased at least 60 days in advance of travel. Or you may choose Area Pricing, a fixed airfare rate to your meeting based on geographical location. Area Pricing must be purchased at least seven days in advance. These discounts apply on United Airlines, Shuttle by United and United Express. Reservationists are on duty seven days a week, 7:00 AM to 12:00 midnight EST. Book early to take advantage of promotional fares that give you the greatest discount.

Rental Car: Avis and Alamo will offer a 10 percent discount on a car rental when booked in conjunction with your airline reservation through United Airlines' Specialized Meeting Reservation Center.

Transportation:

Los Angeles International Airport (LAX) is the major international gateway into Southern California. It is located 31 miles (50 km) and approximately 50 minutes from Anaheim. All major US and international carriers fly into LAX. Call (310) 646-5252 for more information.

Ontario International Airport (ONT) is located 27 miles (42 km) and approximately 45 minutes from the Anaheim area and is serviced by Air LA, Alaska, America West, American, Delta, Northwest, Southwest, United and USAir. Call (909) 937-2700 for more information.

John Wayne/Orange County Airport (SNA) is located 16 miles (42 km) and approximately 25 minutes from Anaheim and is serviced by American, Continental, Delta, TWA and United. Call (714) 252-5200 for more information.

Airport Shuttle: SuperShuttle will provide transportation between Anaheim area hotels and nearby airports. The fares are Los Angeles Airport (LAX), \$13 per person; Ontario International Airport (ONT), \$12 per person; and John Wayne/Orange County Airport (SNA), \$10 per person. Advanced reservations are recommended; call (714) 517-7700 (LAX or SNA) or (909) 467 9600 (ONT).

Taxi: Approximate fare for up to four persons from LAX, \$70; from ONT, \$62; from SNA, \$18.

Advance Conference Registration

1999 IEEE MTT-S MICROWAVE WEEK EVENTS

June 13-19, 1999 ♦ Anaheim, CA ♦ IMS ♦ RFIC ♦ ARFTG

Each Conference Attendee must submit a separate registration form.
A copy of this form may be used. The deadline for advanced registration is May 14, 1999.
Afterwards, on-site fees will apply and will be approximately 30% higher.

NAME		Last		First	
AFFILIATION		Company, Etc.		Mail Stop	
ADDRESS		Street			
		City		State	
		Postal Code		Country	
		e-mail Address			
US/CANADA TEL.		INT'L TEL.			
IEEE MEMBER		<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> IEEE Membership No.*		MTT-S MEMBER <input type="checkbox"/> Yes <input type="checkbox"/> No	
Name of Guest				ARFTG MEMBER <input type="checkbox"/> Yes <input type="checkbox"/> No	

*Must be given to qualify for member discount

For a complimentary badge for plenary session and exhibits

To register, check ☒ the appropriate boxes and enter corresponding fees in the Remittance column.
ONLY PAID ATTENDEES WILL BE ADMITTED TO THE WORKSHOPS AND TECHNICAL SESSIONS.

INT. MICROWAVE SYMPOSIUM (INCLUDES EXHIBITS.)

	IEEE Member	Non Member	Remittance
Mon., Tue., Wed. & Thur.			
All IMS Sessions (Includes IMS CD ROM and Digest.)	<input type="checkbox"/> \$235	<input type="checkbox"/> \$340	\$ _____
All IMS Sessions (Includes IMS CD ROM, <i>no</i> Digest.)	<input type="checkbox"/> \$205	<input type="checkbox"/> \$310	\$ _____
Single-Day Registration (Includes IMS CD ROM, <i>no</i> Digest.)	<input type="checkbox"/> \$105	<input type="checkbox"/> \$150	\$ _____
Student, Retiree, Life Member (Includes IMS CD ROM, <i>no</i> Digest.)	<input type="checkbox"/> \$ 35	<input type="checkbox"/> \$ 50	\$ _____

RFIC SYMPOSIUM (INCLUDES EXHIBITS.)	<input type="checkbox"/> \$ 85	<input type="checkbox"/> \$110	\$ _____
Sun., Mon. & Tue. (Includes RFIC Reception and RFIC Digest.)			

ARFTG-AUTOMATIC RF TECHNIQUES CONFERENCE (INCLUDES EXHIBITS.)

Thur. & Fri. (Includes breakfast, lunch, ARFTG Digest and ARFTG Exhibition.)			
ARFTG Member	<input type="checkbox"/> \$130		\$ _____
ARFTG Non-member	<input type="checkbox"/> \$155		\$ _____
ARFTG Student, Retiree	<input type="checkbox"/> \$ 65		\$ _____

ADDITIONAL DIGESTS AND CD ROMs

(For pickup on-site only. Separate Digests and CD ROMs will be available after the Symposium from the IEEE.)

IMS Digest	Qty. ____ @	<input type="checkbox"/> \$50	<input type="checkbox"/> \$70	\$ _____
IMS CD ROM	Qty. ____ @	<input type="checkbox"/> \$20	<input type="checkbox"/> \$30	\$ _____
RFIC Digest	Qty. ____ @	<input type="checkbox"/> \$35	<input type="checkbox"/> \$50	\$ _____
ARFTG Digest				
Member	Qty. ____ @	<input type="checkbox"/> \$20		\$ _____
Non-member	Qty. ____ @	<input type="checkbox"/> \$45		\$ _____

PANEL SESSIONS (Fee is for box lunch. See reverse side for schedule.)

PMOA: Highly Linear High Efficiency Power Amplifiers for Mobile Handsets — Fact or Fantasy?	<input type="checkbox"/> \$15	\$ _____
PTUB: Starting an Engineering Business	<input type="checkbox"/> \$15	\$ _____
PWEC: Balancing Technical and Business Concerns: Can Engineers Put Business Types in Their Place?	<input type="checkbox"/> \$15	\$ _____
PWED: Open Framework Architectures for the Next Decade of Microwave Computer Aided Design	<input type="checkbox"/> \$15	\$ _____
PTHE: Planning for the High Data-rate Communications Era	<input type="checkbox"/> \$15	\$ _____

RUMP SESSION (Tuesday evening)		<input type="checkbox"/> \$10	\$ _____
EXHIBITS ONLY	Qty. _____ @	<input type="checkbox"/> \$10	\$ _____
DISNEYLAND PASSES <i>adult</i>	Qty. _____ @	<input type="checkbox"/> \$35	\$ _____
(one-day pass) <i>child</i>	Qty. _____ @	<input type="checkbox"/> \$30	\$ _____
AWARDS BANQUET	Qty. _____ @ <input type="checkbox"/> \$40	<input type="checkbox"/> \$60	\$ _____
(Wednesday evening, Marriott — Guest prices are same as attendee prices.)			

WORKSHOPS (See back of this page for titles.) For paid attendees only.

	IEEE Member	Non Member	Student/Retiree/ Life Member
Full Day	\$80	\$105	\$55
Half Day	\$50	\$65	\$35
SUNDAY			
<input type="checkbox"/> WSFA (Full Day)	\$ _____	<input type="checkbox"/> WFFM (Full Day)	\$ _____
<input type="checkbox"/> WSFB (Full Day)	\$ _____	<input type="checkbox"/> WFFN (Full Day)	\$ _____
<input type="checkbox"/> WSFC (Full Day)	\$ _____	<input type="checkbox"/> WFFO (Full Day)	\$ _____
<input type="checkbox"/> WSFD (Full Day)	\$ _____	<input type="checkbox"/> WFFP (Full Day)	\$ _____
<input type="checkbox"/> WSFE (Full Day)	\$ _____	<input type="checkbox"/> WFFQ (Full Day)	\$ _____
<input type="checkbox"/> WSFF (Full Day)	\$ _____	<input type="checkbox"/> WFFR (Full Day)	\$ _____
<input type="checkbox"/> WSHG (Morning)	\$ _____	<input type="checkbox"/> WFFS (Full Day)	\$ _____
<input type="checkbox"/> WSHH (Morning)	\$ _____	<input type="checkbox"/> WFFT (Full Day)	\$ _____
<input type="checkbox"/> WSHI (Morning)	\$ _____	<input type="checkbox"/> WFFU (Full Day)	\$ _____
<input type="checkbox"/> WSHJ (Afternoon)	\$ _____		
<input type="checkbox"/> WSHK (Afternoon)	\$ _____		
<input type="checkbox"/> WSHL (Afternoon)	\$ _____		
		Total for all WORKSHOPS	\$ _____

Full-day workshops include continental breakfast, lunch and afternoon refreshments.
 Morning workshops include continental breakfast and lunch.
 Afternoon workshops include lunch and afternoon refreshments.
 Workshop presenters' notes will be distributed near the registration area.

GUEST PROGRAMS (See page 2 for complete information.)

GA: Getty Center (limit 50) (Sun., 9:30 AM-3:30 PM)	Qty. ____ @	<input type="checkbox"/> \$30	\$ _____
OK to substitute Huntington if Getty is full? YES <input type="checkbox"/> NO <input type="checkbox"/>			
GB: Huntington Gardens and Museum (Sun., 9:30 AM-3:30 PM)	Qty. ____ @	<input type="checkbox"/> \$30	\$ _____
GC: Mission San Juan Capistrano & Laguna Beach (Mon., 9:00 AM-3:30 PM)	Qty. ____ @	<input type="checkbox"/> \$55	\$ _____
GD: Long Beach Aquarium & Harbor Cruise (Tue., 9:30 AM-3:30 PM)	Qty. ____ @	<input type="checkbox"/> \$55	\$ _____
GE: Nixon Library & Antiquing in Old-town Orange (Wed., 9:30 AM-3:00 PM)	Qty. ____ @	<input type="checkbox"/> \$50	\$ _____
GF: Bowers Museum & Sherman Gardens (Thur., 10:00 AM-3:00 PM)	Qty. ____ @	<input type="checkbox"/> \$50	\$ _____

The only acceptable forms of payment are check, money order, MasterCard or VISA.
 Make your check or money order (US \$ ONLY on a US Bank or Traveler's Check) payable to:

"IMS Registration" ■ Or charge your MasterCard or VISA:
☐ MasterCard ☐ VISA

Card # _____
 Signature _____

Exp. Date _____

Written requests for a refund will be honored if received by May 14, 1999.
 A \$25 cancellation fee will be charged for processing.

TOTAL REMITTANCE \$ _____
INDIVIDUAL PAYMENT MUST ACCOMPANY FORM

MAIL COMPLETED FORM AND PAYMENT TO:

1999 IMS Registration, PO Box 414054, Boston, MA 02241-4054, USA • FAX: (781) 828-9992.

For information or phone registration call (888) 397-6208 or (781) 821-6738.

If this form is sent by FAX do NOT also mail; a credit card number & signature, or a check or money order in US dollars, must be included.

PLEASE FAX OR MAIL; DO NOT FORWARD HARD COPY IF FAXED

REGISTRATION IS ALSO AVAILABLE ON THE WORLD WIDE WEB AT www.expo-intl.com/shows/mtt-s/register

WORKSHOPS

	Number	Time	Title
Sunday June 13	WSFA	8:00 AM–5:00 PM	The One-chip Radio...Search for the Holy Grail?
	WSFB	8:00 AM–5:00 PM	Microwave and mm-wave Design Tool Applications on Virtual Prototyping and Experimental Verification of Integrated T/R Modules
	WSFC	8:00 AM–5:00 PM	Measurement for Wireless Front End Technologies
	WSFD	8:00 AM–5:00 PM	Novel Methodologies for Device Modeling and Circuit CAD
	WSFE	8:00 AM–5:00 PM	Nonlinear Modeling and Characterization of Microwave Devices
	WSFF	8:00 AM–5:00 PM	MMIC Flip Chip Technology, Manufacturing and Use
	WSHG	8:00 AM–12:00 PM	Impact of ATM on Ptop and Ptomp Microwave Systems
	WSHH	8:00 AM–12:00 PM	Cryogenic Wafer Probing of Microwave Devices
	WSHI	8:00 AM–12:00 PM	High Resolution Multi-GSPS Analog to Digital Converters for Photonic Systems
	WSHJ	1:00 PM–5:00 PM	High Speed Mixed Mode ICs for Optical Networks
	WSHK	1:00 PM–5:00 PM	State of the Art in Microwave Photonic Components
	WSHL	1:00 PM–5:00 PM	Filters for the Masses
Friday June 18	WFFM	8:00 AM–5:00 PM	Advances in Mixed Electromagnetic Field & Circuit Simulation
	WFFN	8:00 AM–5:00 PM	Microelectromechanical Devices for RF Systems: Their Construction, Reliability and Application
	WFFO	8:00 AM–5:00 PM	An Introduction to the Theory and Practice of Numerical Electromagnetics
	WFFP	8:00 AM–5:00 PM	Recent Advances in Printed Circuit Antenna Technology for Wireless Communications
	WFFQ	8:00 AM–5:00 PM	Ultra High Speed Cryogenic Circuits
	WFFR	8:00 AM–5:00 PM	The Emergence of New Microwave Systems above 45 GHz
	WFFS	8:00 AM–5:00 PM	Technologies for the Next Millennium
	WFFT	8:00 AM–5:00 PM	Photonics in Onboard Active Phased Array Antennas for Communication Satellites
	WFFU	8:00 AM–5:00 PM	Advances in Ceramic Interconnect Technology for Wireless RF and Microwave Applications

PANEL SESSIONS

Monday	PMOA	12:00 PM–1:15 PM	Highly Linear High Efficiency Power Amplifiers for Mobile Handsets – Fact or Fantasy?
Tuesday	PTUB	12:00 PM–1:15 PM	Starting an Engineering Business: The Road to Fortune or Failure
Wednesday	PWEC	12:00 PM–1:15 PM	Balancing Technical and Business Concerns: Can Engineers Put Business Types in Their Place?
Wednesday	PWED	12:00 PM–1:15 PM	Open Framework Architectures for the Next Decade of Microwave Computer Aided Design
Thursday	PTHE	12:00 PM–1:15 PM	Planning for the High Data-rate Communications Era

RUMP SESSION

Tuesday		8:00–10:00 PM	Access to MCM-D Packaging Technology
---------	--	---------------	--------------------------------------

SOCIAL EVENTS

Wednesday		7:30–10:00 PM	Awards Banquet
-----------	--	---------------	----------------

GUEST PROGRAMS

Sunday	GA	9:30 AM–3:30 PM	Getty Center (limit 50)
Sunday	GB	9:30 AM–3:30 PM	Huntington Library, Galleries and Botanical Gardens
Monday	GC	9:00 AM–3:30 PM	Mission San Juan Capistrano and Laguna Beach
Tuesday	GD	9:30 AM–3:30 PM	Sensational Long Beach
Wednesday	GE	9:30 AM–3:00 PM	Nixon Presidential Library and Antiquing in Old-town Orange
Thursday	GF	10:00 AM–3:00 PM	From Bowers to Flowers



CONFERENCE HOUSING

1999 IEEE MTT-S INTERNATIONAL MICROWAVE SYMPOSIUM

June 13-19, 1999 • Anaheim, CA



MTT-S • RFIC • ARFTG

Reservations may be made **only by fax, mail or on-line** and must be received by the Housing Bureau by May 24, 1999.

Phone: (Inquiries Only)

(714) 765-8868

Fax:

(714) 776-2688

Mail:

Anaheim Housing Bureau
PO Box 4270
Anaheim, CA 92803

On-line site:

<http://www.anaheimoc.org/housing.html>
Convention Code: MICRO

INSTRUCTIONS AND HOUSING BUREAU POLICY

1. Please print or type all data requested.
2. Reservations will be processed on a first-come, first-served basis.
3. All reservations require a deposit of first night room plus 15% tax paid by check or guaranteed by credit card.
4. Fax and e-mail reservations must provide credit card information. Checks provided for mail reservations should be made out to Anaheim Housing Bureau.
5. You will receive an acknowledgment of your reservation from the Housing Bureau 7-10 days after your reservation is received.
6. Changes and cancellations prior to May 24 must go through the Housing Bureau.
7. Changes after May 24 must be made with your hotel.
8. Hotel cancellation policies vary. Generally, cancellations received by hotels at least 72 hours prior to scheduled arrivals qualify for deposit refunds, but you should check with your hotel to verify its policy.

HOTEL PREFERENCE

Hotel locations and rates are shown on the reverse side of this form.

Please write full name of hotel and show at least three choices.

First choice _____ Third choice _____

Second choice _____ Fourth choice _____

If hotel choices are unavailable, which is most important: Rate _____ or Location _____ **(please select one)**

Name _____
First Last

Company _____

Address _____

City _____ State/Province _____ ZIP/Postal Code _____

Country _____ Daytime Phone () _____ or FAX () _____
w/Int'l Country Code

Deposit paid by: ☐ Check or Money Order ☐ MasterCard ☐ Visa ☐ American Express

CARDHOLDER NAME (printed) _____

CARDHOLDER SIGNATURE _____

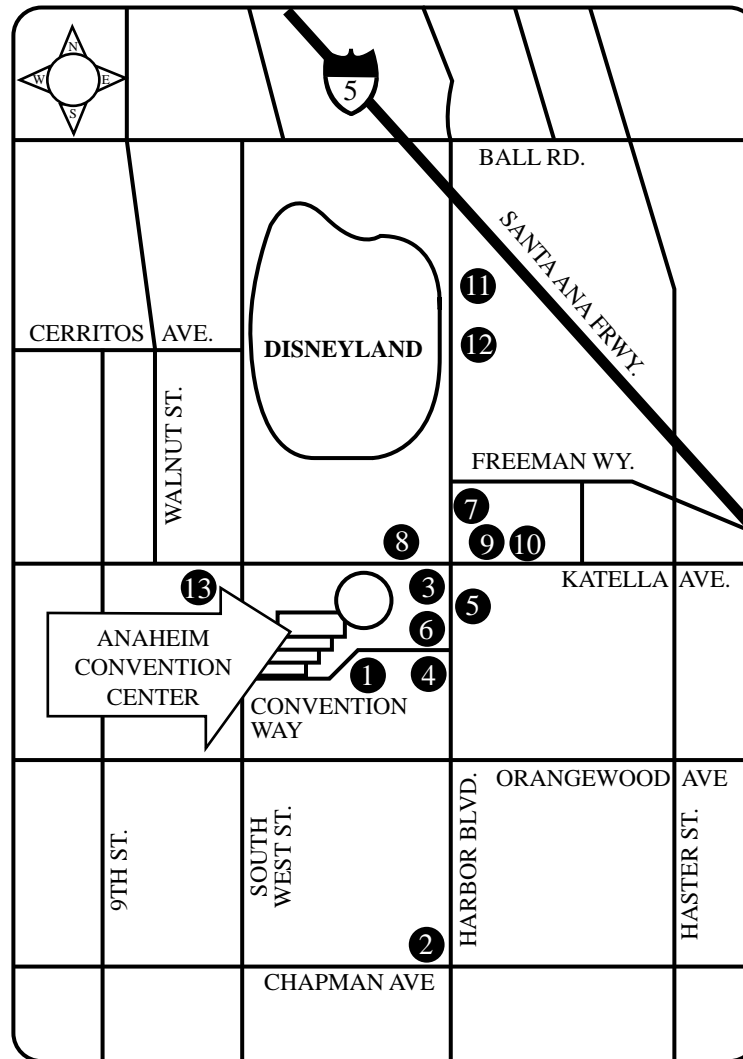
CARD NO. _____ **EXP. DATE** _____

ROOM OCCUPANTS

1. Print or type names of persons occupying each room. If more than three rooms are required, attach a list providing the information requested below for each additional room.
2. Select room type desired, indicate arrival and departure dates, and special requests (not guaranteed).

Occupants (first name first)

ROOM NO. 1	1.	Check one: <input type="checkbox"/> Single <input type="checkbox"/> Double (1 bed) <input type="checkbox"/> Dbl/Dbl (2 dbl beds) <input type="checkbox"/> Govt. Arr. Date: _____ Dep. Date: _____ Requests: <input type="checkbox"/> Smoking <input type="checkbox"/> Non-Smoking <input type="checkbox"/> Wheelchair Accessible <input type="checkbox"/> King
	2.	
ROOM NO. 2	1.	Check one: <input type="checkbox"/> Single <input type="checkbox"/> Double (1 bed) <input type="checkbox"/> Dbl/Dbl (2 dbl beds) <input type="checkbox"/> Govt. Arr. Date: _____ Dep. Date: _____ Requests: <input type="checkbox"/> Smoking <input type="checkbox"/> Non-Smoking <input type="checkbox"/> Wheelchair Accessible <input type="checkbox"/> King
	2.	
ROOM NO. 3	1.	Check one: <input type="checkbox"/> Single <input type="checkbox"/> Double (1 bed) <input type="checkbox"/> Dbl/Dbl (2 dbl beds) <input type="checkbox"/> Govt. Arr. Date: _____ Dep. Date: _____ Requests: <input type="checkbox"/> Smoking <input type="checkbox"/> Non-Smoking <input type="checkbox"/> Wheelchair Accessible <input type="checkbox"/> King
	2.	



1999 IMS CONFERENCE HOTELS

Map No.	Hotel	Single	Double
1	ANAHEIM MARRIOTT HOTEL (HEADQUARTERS)	\$138	\$138
2	HYATT REGENCY ALICANTE	\$109	\$109
3	JOLLY ROGER HOTEL	\$ 95	\$105
4	QUALITY HOTEL MAINGATE	\$112	\$132 (SUITE)
5	RADISSON HOTEL MAINGATE	\$105	\$105
6	WESTCOAST ANAHEIM HOTEL	\$111	\$111
7	CASTLE INN AND SUITES	\$ 72	\$ 92 (SUITE)
8	DESERT PALM INN & SUITES	\$ 79	\$ 99 (SUITE)
9	FOUR POINTS BY SHERATON	\$100	\$100
10	HOLIDAY INN EXPRESS	\$ 82	\$ 82
11	HOWARD JOHNSON HOTEL	\$ 84	\$ 84
12	BEST WESTERN PARK PLACE INN	\$ 85	\$ 85
13	BEST WESTERN STOVALL'S INN	\$ 75	\$ 75

1999 IEEE MTT-S INTERNATIONAL MICROWAVE SYMPOSIUM/MICROWAVE WEEK

SESSION TIME		MORNING		LUNCHTIME		AFTERNOON		EVENING	
8:00-9:40 AM		10:10-11:50 AM		12:00-1:15 PM		1:20-3:00 PM		3:30-5:10 PM	
Sat., June 12								Registration 2 to 8 PM	
Registration 7 AM to 9 PM									
WSFA: The One-chip Radio...Search for the Holy Grail?									
WSFB: Microwave and mm-wave Design Tool Applications on Virtual Prototyping and Experimental Verification of Integrated T/R Modules									
WSFC: Measurement for Wireless Front End Technologies									
WSFD: Novel Methodologies for Device Modeling and Circuit CAD									
WSFE: Nonlinear Modeling and Characterization of Microwave Devices									
WSFF: MMIC Flip Chip Technology, Manufacturing and Use									
WSHG: Impact of ATM on Prop and Promp Microwave Systems				Workshop Lunch 12 to 1 PM			WSHH: High Speed Mixed Mode ICs for Optical Networks		
WSHH: Cryogenic Wafer Probing of Microwave Devices							WSHK: State of the Art in Microwave Photonic Components		
WSHI: High Resolution Multi-GSPS Analog to Digital Converters for Photonic Systems							WSHL: Filters for the Masses		
RFIC Reception 7 to 10 PM Marriott									
Sunday, June 13									
Registration 7 AM to 5 PM									
RFIC Symposium 8 AM to 5 PM – Marriott									
MO1A: Devices for Signal Generation and Amplification				MO2A: Microwave Oscillators			MO3A: Microwave Digital Circuits		
MO2B: Low Noise Components and Design Techniques				PMOA: Highly Linear High Efficiency Power Amplifiers for Mobile Handsets – Fact or Fantasy? Marriott			MO3B: Microwave Hybrid Technology		
MO2C: Millimeter Wave Mixer and Multiplier Technology							MO3C: Millimeter Wave Amplifiers and Sources		
MO1D: Modeling and Analysis of Generalized Networks				MO2D: Neural and Distributed Models for Microwave Circuits			MO3D: Optimization and Neural Network Techniques		
MO1E: Surface and Leaky Waves on Printed Circuits				MO2E: Novel Field Techniques			MO3E: Commercial Microwave Sensor Technology		
MO4E: Advances in Passive Remote Sensing							MO4A: Frequency Control Circuits		
MO4B: Very High Power Components and Applications							MO4C: HF/VHF/UHF Power Amplifiers		
MO4D: Simulation techniques for CAD							MO4E: Advances in Passive Remote Sensing		
Microwave Journal/ MTT-S Reception 6 to 8 PM ANAHEIM CONVENTION CENTER									
Monday, June 14									
Registration 7 AM to 5 PM									
RFIC Symposium 8:30 AM to 5 PM – Marriott; IMS Exhibition 9 AM to 5 PM; uAPRS 12 to 5 PM									
Student Paper Competition, 3 to 5 PM – Arena									
TU1A: Nonlinear MOS and HBT Modeling				TU1F-TU1G: Interactive Forum, 2:30 to 5 PM – Arena			TU4A: Interconnects and Translons		
TUB: High Density Subsystem Packaging Technologies				PMTUB: Starting an Engineering Business: The Road to Fortune or Failure Marriott			TU4B: Phased Array and Active Antennas		
TUD: Millimeter Wave Applications							TU4C: GaAs Technology and Applications		
TU1E: Low Noise MMICs (Joint IMS/RFIC)							TU3D: Biological Effects and Medical Applications		
							TU3E: Terabit Technology for the 21st Century		
Rump Session: Access to MCM-D Packaging Technology 8 to 10 PM Marriott									
Tuesday, June 15									
Registration 7 AM to 5 PM									
IMS Exhibition & uAPRS 9 AM to 5 PM									
WE1A: Passive Structures				WE2A: Advances in Nonlinear Design and Simulation techniques			WE1F-WE1G: Interactive Forum, 2:30 to 5 PM – Arena		
WE1B: Focused Session: Optical Processing of Microwave Signals				WE2B: Microwave Photonic Components			WE4A: Device Technology for Power Amplifiers		
WE1C: Filters: Network Theory				WE2C: Filters with Novel Resonator Structures			WE4B: Fiber Fed Wireless Access Systems		
WE1D: Submillimeter Wave and Terahertz Technologies				WE2D: Microwave Communications Systems for V2K and Beyond			WE4C: Active and MEMS Filters		
WE1E: High Power Transistor Amplifiers for X through Ka Band				WE2E: Processing Technologies for the 21st Century			WE4D: Automated Characterization Techniques (Joint IMS/ARFTG)		
							WE3E: Southern California Historical Firsts in Microwave Systems		
Industry-hosted Cocktail Reception 6 to 7:30 PM Marriott									
Wednesday, June 16									
Registration 7 AM to 5 PM									
IMS Exhibition & uAPRS 9 AM to 3 PM									
TH1A: Integrated Subsystems for Wireless				TH2A: Intelligent Transportation Systems			TH1F-THE5: Interactive Forum, 2:30 to 5 PM – Arena		
TH1B: Novel Transition Structures				TH2B: Micromachined Components			TH3A: Sensor Applications		
TH1D: Microwave Acoustic Applications				TH2D: Superconducting Components and Technology			TH3B: Passive Circuit Elements		
TH1E: New Techniques in Time Domain Modeling				TH2E: Advances in Time Domain EM Field Analysis			TH3C: Microwave Measurement Technology		
							TH4A: Frequency Domain Numerical Techniques II		
							TH4B: Couplers and Baluns		
							TH4C: Automated Characterization Techniques (Joint IMS/ARFTG)		
Awards Banquet 7:30 to 10 PM Marriott									
Thursday, June 17									
Workshop Registration 7 to 9 AM									
ARFTG Conference & Exhibition 7:30 AM to 5 PM – WestCoast ANAHEIM									
WFFM: Advances in Mixed Electromagnetic Field & Circuit Simulation									
WFFN: Microelectromechanical Devices for RF Systems: Their Construction, Reliability and Application									
WFFO: An Introduction to the Theory and Practice of Numerical Electromagnetics									
WFFP: Recent Advances in Printed Circuit Antenna Technology for Wireless Communications									
WFFQ: Ultra High Speed Cryogenic Circuits									
WFFR: The Emergence of New Microwave Systems above 45 GHz									
WFFS: Technologies for the Next Millennium									
WFFT: Photonics in Onboard Active Phased Array Antennas for Communication Satellites									
WFFU: Advances in Ceramic Interconnect Technology for Wireless RF and Microwave Applications									
Friday, June 18									

1999 IEEE MTT-S INTERNATIONAL MICROWAVE SYMPOSIUM

Anaheim, CA • June 13-19, 1999

ADVANCE PROGRAM

Horizon House Publications, Inc.

685 Canton Street

Norwood, MA 02062

1999 IEEE MTT-S International Microwave Symposium



<http://www.mtt.org/ims1999>

June 1999 IEEE MTT-S International Microwave Symposium Week

ACTIVITY	LOCATION	SUN/13				MON/14				TUE/15				WED/16				THU/17				FRI/18			
		M	N	A	E	M	N	A	E	M	N	A	E	M	N	A	E	M	N	A	E	M	N	A	E
IMS	Technical Sessions																								
	Workshops																								
	Plenary Session																								
	Interactive Forum																								
	Student Paper Contest																								
	Panel Sessions																								
	Rump Session																								
Exhibits																									
	μAPS																								
RFIC	Technical Sessions																								
	IMS Joint Session																								
	Interactive Forum																								
	Workshop																								
	Panel Session																								
ARFTG	Workshop																								
	IMS Joint Session																								
	Conference																								
	Exhibits																								
Social	Workshop Bkfst, Lunch																								
	MTT Members Bkfst																								
	RFIC Reception																								
	MJ Reception																								
	Industry Reception																								
	MTT Awards Banquet																								
	Speakers Breakfast																								
	ARFTG Breakfast																								
	ARFTG Awards Lunch																								

ACC = Anaheim Convention Center